

## BASIC PORTFOLIO PERFORMANCE, 1972–2013



Let's quickly sum up what we've learned so far. We've learned that the retirement risk—the risk of outliving your money—can manifest itself in two ways. You can encounter too much (negative) market volatility (John Stockman's path to bankruptcy) or not earn enough returns to outpace inflation (Joe Bondsman's road to financial ruin). We've also learned about the two ways to diversify and reduce a portfolio's volatility. First, we can add low-volatility investments (bonds) to a portfolio of high-volatility investments (stocks). The resulting mix will be less volatile than a portfolio consisting of stocks alone, but it will produce lower returns than an all-stock portfolio. This approach to diversification is based on the principle of *compromise*: to reduce the risk of too much market volatility, you must take on some increased risk of earning returns insufficient to outpace inflation.

Black belt investing is the second way to reduce market volatility. It is based on the principle of *correlation*, and it works by turning volatility to your advantage. By mixing into your portfolio some *high-volatility* investments with *low correlation* to the broad stock market, you can reduce the portfolio's volatility without having to give up much, if anything, in the way of returns. Black belt investing using the correlation principle allows you to reduce your risk of winding up like John Stockman without increasing your risk of winding up like Joe Bondsman. However, the correlation principle is less reliable than the compromise principle. Under some conditions, it works quite well (as in the 2000–2002 bear market), but in other situations, it does not work as well (as in the 2007–9 financial crisis). For this reason, a portfolio constructed according to the principle of correlation should also make use of the principle of compromise, as a backup or fail-safe mechanism. Just as a nuclear power plant includes multiple layers of safeguards to prevent a meltdown, a well-diversified portfolio

should make room for both high-volatility and low-volatility hedges to reduce the risk that you'll experience a financial meltdown.

We also learned about the asset classes that you can use to create a gourmet, well-diversified portfolio. We learned about both U.S. and international large cap stocks—the meaty core at the center of such a portfolio. We studied the vegetable side dishes—the high-volatility hedges (gold, precious metals equities [PME], and emerging-market bonds) that you can use to put the powerful principle of correlation to work in your portfolio. We studied the potatoes—the low-volatility bonds that, though bland and unexciting, just might sustain your portfolio when the stock market hits hard times. And we learned about the special spices—small caps and value stocks that can boost your returns and help keep you from following in Joe Bondsman's footsteps.

In Part II, we studied the behavior of each of these asset classes—the ingredients of a gourmet portfolio—during past bear markets and bull markets, of both the cyclical (short-term) and secular (long-term) variety. We saw how each asset class responded to various economic and market conditions, and we learned that each has its own unique advantages and disadvantages—its own flavors and textures—and its own job to perform in a well-diversified portfolio.

In Part II, we considered each asset class in isolation. However, we need to understand not only how the asset classes behave separately but how they behave when they are mixed together in a portfolio. And what better way to do that than to actually create some portfolios and see how they would have performed during past bull and bear markets? In this chapter, we create some simple, or basic, portfolios that include only a few asset classes. In the next chapter, we create some more sophisticated or advanced portfolios that make full use of all of the asset classes we studied in Part II. In both chapters, we mix in different amounts of bonds to create portfolios ranging from conservative to aggressive. Once you have a feel for how different well-diversified portfolios respond to different situations, you'll be ready for the job of creating the special portfolio that best suits your own tastes for risk. That's a job we'll tackle together in Part IV.

## The Basic Portfolios

### The Data Challenge

To put our portfolios to the test, we will need historical data. Unfortunately, data on mutual fund returns become spotty the further back in time we go. From the mid-1990s up to the present, we can obtain the data we need for all of the asset classes of interest to us. For the early 1990s, return data are available for most, but not quite all, of our asset classes. As we go further back in time, into the 1980s and especially the 1970s, the data cover fewer and fewer asset classes. Unfortunately,

mutual funds for the more exotic investments, like emerging-market bonds and inflation-protected bonds, did not exist back then. This limits our ability to backtest our portfolios, especially during the earlier market downturns like the 1973–74 bear market. (A backtest is like a forecast, except that it shows how a portfolio actually would have performed in the past rather than projecting how it might perform in the future.)

There is, however, a way around this problem. If we limit our portfolios to just a few of the more basic asset classes, we can obtain the return data we need all the way back to the early 1970s.

So here is what we will do. For the purpose of backtesting during *cyclical* (short-term) bear markets and market corrections, we will create a few basic portfolios comprising just a few asset classes. We will be able to get the return data we need to test these basic portfolios. Although the tests will not tell us how more sophisticated portfolios would have held up to the market strains of the 1970s and 1980s, they will still give us a good indication of diversification's potential for mitigating one of the two key components of the retirement risk: too much (negative) volatility.

In addition to testing the basic portfolios' performance during cyclical downturns, we will also look at how they would have performed over the long run, from the 1970s up to the present. We will test the portfolios' returns and survivability for both a young person who does not need to draw down on her nest egg and a retiree who must make regular withdrawals to meet living expenses. This long-run test will tell us how well the portfolios mitigate the second key component of the retirement risk: not enough returns to keep up with inflation.

Then, in the next chapter, we will focus on the 1990–2011 period. Because data are available on almost all of our asset classes during this latter period, we will be able to construct and test more advanced portfolios and compare the results with the basic portfolios we create in this chapter. Our focus in Chapter 9 will be on the secular (long-term) bull market of the 1990s and the secular bear market of the 2000s, although we will also drill down into the results to see how the advanced portfolios would have held up during the cyclical downturns of the 1990s and 2000s—especially the big, bad bear markets of 2000–2002 and 2007–9.

In addition to getting around the data limitations, this approach has other advantages. We will be able to “get our feet wet” by creating a few basic portfolios before we dive into the bigger challenge of constructing more advanced portfolios. And although a top-notch portfolio will take advantage of the hedging, diversification, and return-boosting benefits of *all* of the asset classes we studied in Part II, there is a limit to the number of investments that should or can be held by those with more modest retirement nest eggs. The basic portfolios we will study in this chapter represent a good starting point for the construction of a personalized portfolio for those of more modest means, including young people who have just started saving. And as we shall see, these basic portfolios, though simple, are still very powerful tools for reducing volatility while maintaining good returns.

## Four Steps to Portfolio Development

Whether it will be simple and basic or complex and sophisticated, the creation of a portfolio always involves the same four steps. We begin by picking the ingredients, or asset classes, that our gourmet portfolio will comprise.

**Step 1: Picking the asset classes (or ingredients).** In Part II, we divided the asset classes of interest into four main groups:

- *Large cap stocks* (including international developed-market and emerging-market stocks as well as U.S. large caps)
- *High-volatility hedges* (gold, PME funds, and emerging-market bond funds)
- *Low-volatility hedges* (U.S. government bond funds, TIPs funds, and investment-grade mixed bond funds)
- *Return boosters* (small cap funds and value stock funds)

Our goal, in this chapter, is to create a basic portfolio with just a few key ingredients. What could be simpler than a portfolio including one asset class from each of the preceding categories? For starters, let's consider the following:

- A U.S. large cap blend fund
- A PME fund (for our high-volatility hedge)
- A short-term, investment-grade mixed bond fund (for our low-volatility hedge)
- A small cap value fund (for our return booster)

This list of ingredients covers most of the bases of a well-diversified portfolio. The PME fund will provide the portfolio with some of the hedging benefits of gold, without weighing down returns as gold can do. Mixed bond funds generally include a good helping of Treasuries, so this portfolio will capture the hedging power of Treasuries while still providing the diversification benefits of other types of bonds. By including a small cap value fund, we'll get the return-boosting power of both small caps and value stocks. There is only one really significant, avoidable weakness in this portfolio: it does not include any foreign investments. Therefore, let's complicate our ingredient list just slightly by adding a fifth element to it: a foreign large cap blend fund.

**Step 2: Deciding on the mix of stocks and bonds.** The second step of creating a portfolio is also the most important—and the hardest. This is where we must decide how much of our money we will allocate to the stock portion of our portfolio and how much to the bond portion. Nothing will have a bigger impact on the volatility and returns of your own portfolio than this decision. We will consider the stock/bond allocation decision in depth in Part IV. But for now, we aren't going to limit ourselves to a single allocation—instead, we are going to create three separate portfolios, based on three separate stock/bond splits. This will allow us to test how different stock/bond allocations would have performed in the past and enable you to get a feel for the risks and returns associated with different allocations. We will consider a conservative stock/bond allocation, a moderate allocation, and an aggressive allocation, as follows:

- *Conservative portfolio:* 40 percent stocks, 60 percent bonds (40/60)
- *Moderate portfolio:* 60 percent stocks; 40 percent bonds (60/40)
- *Aggressive portfolio:* 80 percent stocks; 20 percent bonds (80/20)

**Step 3: Allocating the stock portion of the portfolio.** Once we've decided on our stock/bond mix, the next step is to measure out each individual ingredient in the appropriate amount. This is done separately for the stock and bond portions of the portfolio. Table 8.1 shows the percentage of our money that we will allocate to each asset class in the stock portion of the portfolio. Notice, first, that we will allocate 20 percent to our high-volatility hedge—the PME fund. Twenty percent is the maximum amount I feel comfortable investing in what is, after all, a very small and highly volatile niche of the global equities market. Should gold and PME suffer some sort of major crash, a 20 percent allocation will limit the impact on our portfolio's overall returns.

**Table 8.1. Basic Portfolios Stock Allocation**

Asset Type	Asset Class	Percentage Allocation
Large caps	U.S. large cap blend	30%
Large caps	Foreign (developed-market) large cap blend	30%
High-volatility hedge	PME	20%
Return booster	Small cap value	20%
<b>Total</b>		<b>100%</b>

We'll allocate an additional 20 percent of the portfolio to the small cap value fund. Small cap value stocks make up a mere 3 percent of the Dow Jones U.S. Total Market Index. We are significantly overweighting our investment in small cap value stocks to boost our returns.

After allocating 20 percent to small cap value stocks and another 20 percent to PME, we are left with 60 percent for large caps. We have split this amount equally (30 percent each) between U.S. and international large caps.

**Step 4: Allocating the bond portion of the portfolio.** Finally we need to allocate the bond portion of our portfolio to our asset classes. But because we are only going to include a single asset class (short-term, investment-grade bonds) in our bond portfolio, it follows that this single asset class will make up 100 percent of our allocation. So Step 4 is already done.

**Applying the asset allocation.** Let's assume we have \$100,000 to invest. So now, we need to take this money and distribute it according to the percentage allocations we've already decided. First, we split it according to our stock/bond allocation, as follows:

- *Conservative (40/60) portfolio:* \$40,000 stocks, \$60,000 bonds
- *Moderate (60/40) portfolio:* \$60,000 stocks; \$40,000 bonds
- *Aggressive (80/20) portfolio:* \$80,000 stocks; \$20,000 bonds

Then, we take these stock/bond splits and split our money further in accordance with the percentage allocations in the stock and bond portions of our portfolios. The final results are shown in Tables 8.2–8.4.

**Table 8.2. Basic Portfolio, Conservative Allocation**

Asset Class	Percentage Allocation	Dollar Allocation
<b>Stocks:</b>		<b>\$40,000</b>
U.S. large cap blend	30%	\$12,000
Foreign large cap blend	30%	\$12,000
PME	20%	\$8,000
Small cap value	20%	\$8,000
<b>Bonds:</b>		<b>\$60,000</b>
Short-term investment-grade bonds	100%	\$60,000
<b>Total</b>		<b>\$100,000</b>

**Table 8.3. Basic Portfolio, Moderate Allocation**

Asset Class	Percentage Allocation	Dollar Allocation
<b>Stocks:</b>		<b>\$60,000</b>
U.S. large cap blend	30%	\$18,000
Foreign large cap blend	30%	\$18,000
PME	20%	\$12,000
Small cap value	20%	\$12,000
<b>Bonds:</b>		<b>\$40,000</b>
Short-term investment-grade bonds	100%	\$40,000
<b>Total</b>		<b>\$100,000</b>

**Table 8.4. Basic Portfolio, Aggressive Allocation**

Asset Class	Percentage Allocation	Dollar Allocation
<b>Stocks:</b>		<b>\$80,000</b>
U.S. large cap blend	30%	\$24,000
Foreign large cap blend	30%	\$24,000
PME	20%	\$16,000
Small cap value	20%	\$16,000
<b>Bonds:</b>		<b>\$20,000</b>
Short-term investment-grade bonds	100%	\$20,000
<b>Total</b>		<b>\$100,000</b>

## Short-Term Bear Market Tests

### Bear Market Depth Reduction

Using the portfolio allocations presented in Tables 8.2–8.4, along with average mutual fund return data for the five asset classes composing our portfolios, we can calculate total portfolio losses during each of the eight major bear markets and market corrections of the last four decades. I've assumed that we start at the beginning of each market downturn with our original \$100,000. I've also assumed that we will rebalance our portfolios on an annual basis, at the beginning of January. Some of our investments will suffer larger bear market losses than others. When we rebalance, we sell a portion of the higher-returning (or lower-losing) investments and use the proceeds

to buy more of the lower-returning investments—thereby returning our portfolios to their originally planned percentage allocations. By rebalancing on January 1, our results reflect this selling and buying process for those bear markets and market corrections that last through one or more Januaries.<sup>66</sup> We consider the subject of rebalancing in depth in Chapter 15.

Table 8.5 compares the losses suffered by our three basic portfolios with the S&P 500's losses for the eight major market downturns. The first column of the table shows the distribution of losses for the S&P 500. Reading down this column from top to bottom, we find that four of the eight market downturns produced S&P 500 losses falling in the 15 to 20 percent range (these were the four market corrections). The S&P 500's worst loss (which came during the 2007–9 financial crisis) fell in the 55 to 60 percent range.

The next three columns of the table show the losses our three basic portfolios would have incurred during the same eight market downturns. Let's take a look at the aggressive portfolio (in the second column). This portfolio managed to limit losses to less than 20 percent in six of the eight downturns. The worst loss incurred by the aggressive portfolio would have been 40 to 45 percent, as compared with the S&P 500's worst loss of 55 to 60 percent.

**Table 8.5. Distribution of Losses Incurred by the Basic Portfolios and the S&P 500 over the Eight Major Bear Markets and Market Corrections of 1972–2013**

Total Percentage Lost at Market Bottom	Number of Market Downturns by Loss Range			
	S&P 500	Aggressive Portfolio	Moderate Portfolio	Conservative Portfolio
5% to 10% Gain				1
0% to 5% Gain				1
0% to 5% Loss			1	
5% to 10% Loss		1	2	4
10% to 15% Loss		1	3	
15% to 20% Loss	4	4		1
20% to 25% Loss			1	1
25% to 30% Loss		1		
30% to 35% Loss	1		1	
35% to 40% Loss				
40% to 45% Loss	1	1		
45% to 50% Loss	1			
50% to 55% Loss				
55% to 60% Loss	1			
<b>Total number of downturns</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>6</b>

Source: Developed by the author using data from [www.morningstar.com](http://www.morningstar.com).



By including a larger helping of bonds, the moderate portfolio further reduced losses below 15 percent during six of the eight downturns. The worst loss incurred by the moderate portfolio fell in the 30 to 35 percent range.

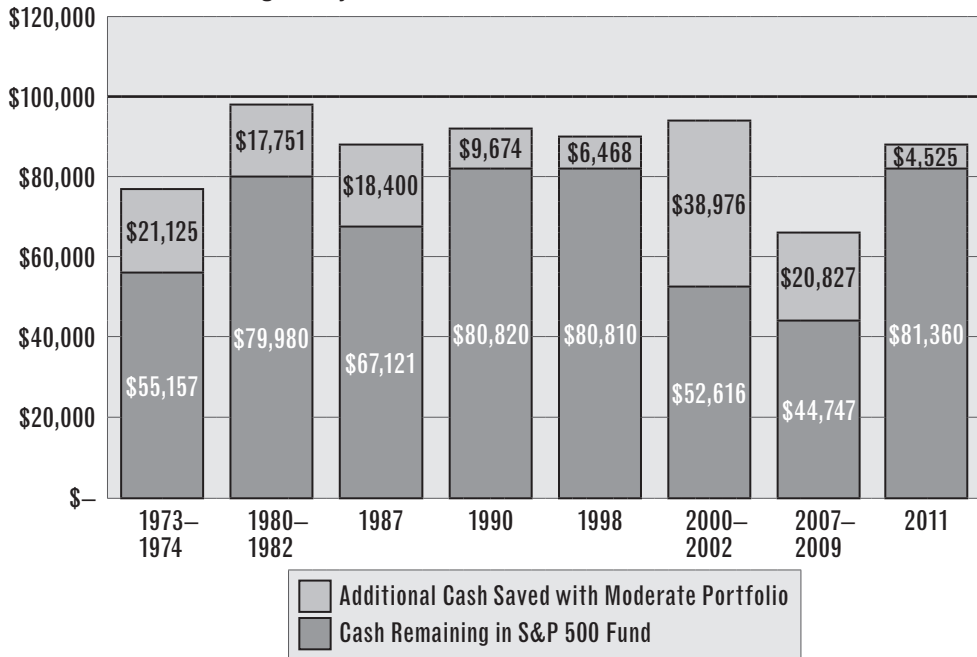
Finally, the conservative portfolio kept losses in the single digits (less than 10 percent) during six of the eight bear markets and market corrections. Even more impressively, this portfolio managed to produce modest *gains* during two of these six downturns. One of these two gains (of 5.8 percent) was generated during the 1980–82 market correction, when the S&P 500 declined by 20.0 percent. The other gain was smaller (only 0.3 percent) but much more impressive because it came during the killer 2000–2002 bear market. The S&P 500 lost 47.4 percent of its value during this bear market.

The worst loss incurred by the conservative portfolio fell in the 20 to 25 percent range—less than half of the worst loss experienced by the S&P 500 (55 to 60 percent).

One of the most dangerous financial situations a person can face is to retire just before or during a bear market. This is what happened to John Stockman, who retired just a few months before the 1929 Crash. It's much more difficult to recover from a major loss when it occurs early in retirement rather than later (after you've had time to build up a larger nest egg). The basic portfolios we've created would have significantly reduced the odds of experiencing bear market–sized losses early in retirement. Remember that a bear market is defined as a loss of 20 percent or more and that we have had four bear markets since 1970. But even the aggressive portfolio would have reduced the number of times our losses exceeded 20 percent to only two. And the conservative portfolio would have reduced this number even further, to just a single occurrence. Instead of four chances of retiring into a bear market–sized loss over the past forty years, the basic portfolios would have reduced our chances to just one or two. Even a basic portfolio, containing only five investments but built on the principles of correlation and compromise, has the power to tame some of the fiercest bears we've ever encountered.

Table 8.5 shows losses in terms of percentages, but what happened to the \$100,000 principal? After all, you can't spend percentages. Figure 8.1 presents the results of the backtests in the units we know and love—good old dollars. In this figure, the dark gray bars show how much money would have been left in an S&P 500 Index fund<sup>67</sup> on the day the market hit bottom during each of the past eight market corrections and bear markets. The light gray bars show the *additional* amount of money you would have saved had you been invested in the moderate portfolio instead of 100 percent in the S&P 500 fund. In all eight downturns, the reduction in losses achieved through diversification would have been significant, ranging from \$4,525 (during the 2011 market correction) to a whopping \$38,976 (during the 2000–2002 bear market). Interestingly, the savings are the largest for the four bear markets and the long-lived 1980–82 market correction. Loss reductions exceed \$17,000 in all five of these downturns, while savings are less than \$10,000 in the three short-lived (less than one year) market corrections. This is indeed a happy fact, as it is the bear markets and the long-lived market corrections that pose the greatest risk to retirement. At least over the last four decades, diversification has worked best when it's been most needed.

**Figure 8.1. Dollars Remaining at Market Bottoms  
for the Moderate Portfolio and the S&P 500  
over the Eight Major Bear Markets and Market Corrections of 1972–2012**



Source: Developed by the author using data from [www.morningstar.com](http://www.morningstar.com).

Now, I know what some of you are thinking. Some of you are fixated on the gaps between the \$100,000 grid line and the tops of the light gray bars in the figure. Those gaps represent the amount of money you would have lost out of your \$100,000 moderate portfolio. And yes, while those gaps are a lot smaller than the gaps between the \$100,000 grid line and the S&P 500 (dark gray) bars, they are still substantial. A well-diversified portfolio is not a magic wand that will keep you from losing money in the stock market. It will *reduce* your occasional losses, not *eliminate* them. And sometimes those occasional losses will be enormous. Take the worst case: the 2007–9 bear market. The moderate portfolio would have reduced your losses by more than \$20,000 relative to the S&P 500. But you would have still lost nearly \$35,000. Even the conservative portfolio would have lost almost \$25,000 during 2007–9.

And some of you—not all of you, but some of you—are thinking, “I don’t want to lose that kind of money. Ever. *And if a well-diversified portfolio can’t prevent losses like those, I’ll be better off forgetting about diversification and just selling my investments before it ever gets that bad.*”

I can empathize with the first part of that thought. Who *would* want to lose 25 or 35 percent of their money? But if the second part of that thought describes your thinking, please, *please* don’t throw this book in the trash! At least not yet. In Part V, you will learn why you will probably wind up much worse off selling during downturns than holding a well-diversified portfolio through thick and thin. The details are all in Part V, but here’s the quick synopsis: if you sell during a downturn,

chances are you will turn a temporary loss into a permanent loss. The selling part is easy. It's the *buying back* into the market that's treacherous. Unless you are fully prepared, mentally and emotionally, to buy back into the market *when the future looks bleaker than it did when you sold*, you will wind up locking in your losses forever. If you wait to buy back until the future looks brighter (as most people who sell during bear markets do), you will wind up having sold low and bought high.

And one last point while we're on this subject: the market has recovered from every single one of the downturns shown in Figure 8.1. In investing, patience is rewarded. Panic is punished.

## Bear Market Recovery Length Reduction

**The history of market recoveries.** But just how patient do you have to be? Wouldn't it take forever to recover from a 35 percent loss?

A few years ago, I accompanied my mother to a free dinner hosted by a man in the business of selling annuities. In attendance were about thirty people, mostly older. After dinner, he gave us his pitch. It was a very good pitch—if by “good” we mean successful in misleading a lot of people. To persuade us that an annuity is a much better investment than stocks, he talked about how the market lost almost half its value during 2000–2002. He stated (correctly) that if you lose half your money in a market downturn, you then have to *double* your remaining money just to get back to even. “How long,” he asked, “would it take you to double your money? Wouldn't that take forever?”

He intended this question to be rhetorical, but I'm going to answer it here. It took four years. An investment in the S&P 500 made on March 24, 2000 (the beginning of the bear market) would have fully recovered by October 2006—four years after the October 2002 market bottom. (It took an additional year—five years total—for the S&P 500 to fully recover on an inflation-adjusted basis.) I'll add that the dinner took place *after October 2006*. The market had already fully recovered when our dinner host posed his question.

Let's take an even worse case. In the 2007–9 bear market, the S&P 500 lost 55 percent of its value. A \$100,000 investment in the S&P 500 on October 9, 2007, would have been worth only \$45,000 by March 9, 2009. The S&P 500 would have to return more than double—nearly 125 percent—of its March 9, 2009, value to recover from such a devastating loss. How long would *that* take?

As it turns out, it took less time than the recovery from the 2000–2002 bear market. Between March 2009 and September 2012, the S&P 500's total returns (dividends plus capital gains) surpassed 125 percent. That's three and a half years to more than double your money. (Full recovery in dollars adjusted for inflation took until March 2013, or four years.)

Now let's consider the Mother of All Worst Cases—the 1929 stock market crash and subsequent depression. The Dow Jones Industrial Average dropped 89 percent

between 1929 and 1932. Surely it would take decades, if not forever, to recover from that kind of a loss, no?

It's true that the Dow didn't reach its 1929 pre-Crash value until 1954. But the Dow does not account for dividends. And even after taking dividends into account, it provides a distorted image of the real recovery time, given that it includes a mere thirty stocks and is not adjusted for the deflation that occurred during the Great Depression. According to Ibbotson Associates, the deflation-adjusted total returns (dividends plus capital gains) of the *entire* U.S. stock market took a little less than five years to recover from the 1932 market bottom.<sup>68</sup>

To put these recovery times into perspective, between 1970 and 2012, the S&P 500 has taken, on average, roughly 7 years to double its value. The rallies from the 2000–2002 and 2007–9 bear markets cut this average doubling time in about half. The fact is that the rallies that follow bear markets happen *fast*. Why? The market can be counted on to overreact during a major sell-off. It's as if everyone suddenly believes that cartoon character walking around with the sign saying "The world is coming to an end." Panic sets in, investors sell everything that isn't nailed down, and the major indices plummet to incredible lows. On top of the general panic, hedge funds, Wall Street banks, and other institutions that leverage their stock positions are forced to sell to meet margin calls. Then investors wake up a few months later and, perhaps feeling a bit sheepish and embarrassed, find that the world has not come to an end after all. Oops. They also find that stocks are selling at ridiculously low, "end of the world" prices. The smarter investors start buying, prices rise, and soon enough greed replaces fear. It all happens very quickly, because the professional money managers who account for over 95 percent of the total trading volume on the New York Stock Exchange<sup>69</sup> know that once a rally begins, they *have* to move fast or miss out on those bargain-basement prices. I can't count the number of pros I heard on CNBC during the spring and summer of 2009, saying things like "I don't believe in this rally," "we're heading for a double-dip recession," and "I'm holding my nose while buying into this rally." But most of them, despite their own disbelief that the rally would last, said that they *were* buying—presumably because they felt they had to buy or be left behind in the dust. The market is governed by a herd mentality, and once the herd stampedes—be it during a panic sell-off or during the recovery rally that inevitably follows—the market will move at stampede speed.

So much for our annuity salesman.

But while three, four, or five years is a lot shorter than forever, it's still a very long time to have to wait when you've lost a lot of money and need to get it back. Can our basic portfolios speed up the recovery process? Let's take a look at what history has to tell us.

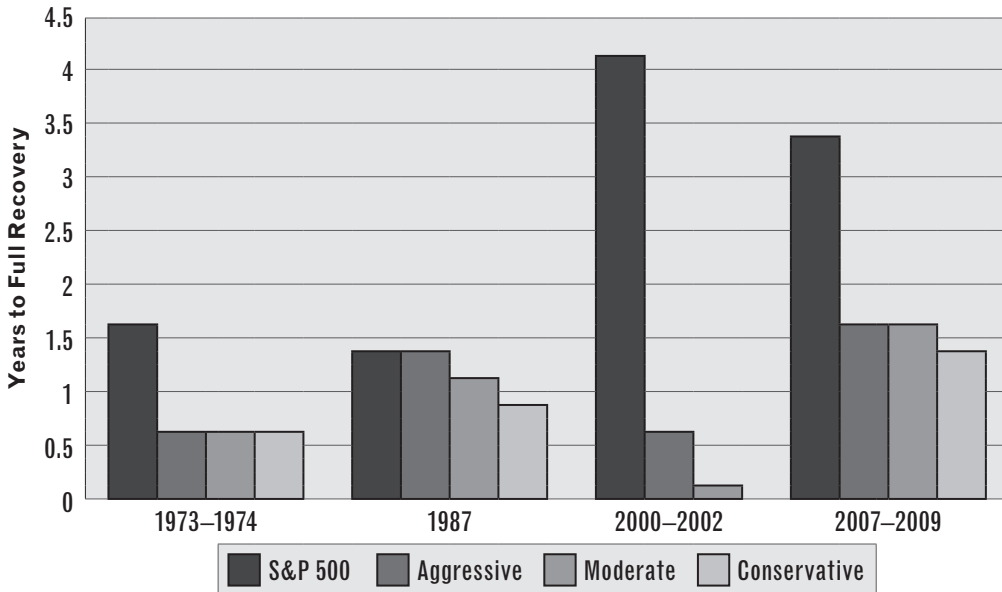
**Turbocharge recovery rallies using the basic portfolios.** Figure 8.2 shows the amount of time it would have taken for each of the three basic portfolios to fully recover their losses following the four bear markets that have occurred since 1970. The recovery

time for the S&P 500 is also shown. With a single exception, the basic portfolios recovered faster than the S&P 500 following all four downturns. The single exception occurred after the 1987 bear market; as the figure shows, the aggressive portfolio was unable to improve upon the recovery time for the S&P 500. The improvements on recovery time from the 1987 downturn were relatively modest even for the moderate and conservative portfolios.

However, keep in mind that the 1987 bear market was much shorter and shallower than the other three bear markets shown in Figure 8.2. During the three worst bear markets, all three basic portfolios cut recovery times by nearly half or better. Following 1973–74, the S&P 500 took a little longer than one and a half years to recover; our three portfolios took between six and nine months to return to their original \$100,000 value. After the 2007–9 bear market, the S&P 500 needed a little more than three years to fully recover; our portfolios cut this time to about eighteen months.

But the most stunning achievement came in the wake of the 2000–2002 bear market. It took the S&P 500 a little longer than four years to recover from this downturn—by far the longest recovery of the four bear markets. The aggressive portfolio reduced this time to between six and nine months, and the moderate portfolio fully recovered its losses in fewer than three months. The recovery time for the conservative portfolio does not appear in Figure 8.2, because that portfolio did not sustain any losses in 2000–2002; instead, it yielded slight gains.

**Figure 8.2. Recovery Times from the Last Four Bear Markets for the Basic Portfolios and the S&P 500**



Source: Developed by the author using data from [www.morningstar.com](http://www.morningstar.com).

Time is money. The longer a bear market and subsequent rally take before your losses are recovered, the longer you must endure without any portfolio growth. Waiting years just to recover your losses can be frustrating for a younger person still in the workforce. But it can be devastating for a retiree who must continually withdraw funds from her portfolio to meet living expenses. The reductions in bear market recovery times achievable by well-diversified portfolios could mean the difference between beating the retirement risk and being beaten by it.

**Market corrections.** Figure 8.2 shows only bear markets, that is, market downturns that exceeded a 20 percent loss. What about the four major market corrections that have occurred since 1970? Paradoxically, our portfolios tended to recover more slowly than the broader market from these more limited (less than 20 percent) downturns.<sup>70</sup>

Why would our portfolios, which proved so effective at speeding up recoveries after bear markets, slow recovery down after market corrections? The answer is that these portfolios reduce recovery times not by speeding up the recovery process but by reducing the size of the losses that need to be recovered. In fact, because all three of our portfolios include a sizeable helping of low-volatility, low-returning bonds, they actually rise in value *at a slower rate* than the stock market during recovery rallies. However, following major bear markets like 1973–74 and the downturns of the 2000s, the S&P 500 had a much longer hill to climb than our portfolios to get out of the hole and back to even. In all three cases, the recovery rallies started out very strong but sputtered and slowed down before the S&P 500 could finish this long, hard climb. Our portfolios, having a much shorter hill to climb, were able to fully recover their losses before the market ran out of steam. If you think of a recovery rally as an uphill race, then after the worst bear markets, that race is a marathon for the S&P 500 but a middle-distance run for our portfolios; the market tires out long before it can catch up to us.

In the case of market corrections, conversely, the S&P 500 has a much shorter distance to climb to get out of the hole, the recoveries still start out strong, and hence the S&P 500 has been able to complete the climb in a matter of months, not years. Furthermore, diversification with high-volatility and low-volatility hedges has proven less effective at reducing losses during market corrections than during bear markets. Our basic portfolios, weighed down by bonds and with a shorter lead, get passed and fall behind the stock market during the short sprints to recovery that follow market corrections.

Bonds are thus a double-edged sword. They reduce the *size* of losses during market downturns, but they also slow down the *pace* of recovery. However, while our basic portfolios increased the length of time needed to recover from past market corrections by a few months, they have successfully reduced bear market recovery times by *years*. And of course, bear markets pose a much greater danger to your nest egg than market corrections. We can accept some lengthening of recovery times for market corrections to significantly reduce recovery times for major bear markets.



## Long-Run Tests

So far we have tested our portfolios over short-term, cyclical events: bear markets, market corrections, and recovery rallies. We have learned that they can significantly reduce both the depth of bear markets and the time needed to recover from these downturns. In short, they can significantly mitigate the impact of market volatility, the bane of John Stockman, and one of the two key components of the retirement risk.

But the question remains, how do our portfolios stack up against the other key piece of the retirement risk: not enough returns to keep up with inflation (the undoing of Joe Bondsman)? Our portfolios use both of the principles we learned about in Chapter 2 to reduce volatility—*correlation* and *compromise*. The latter principle, compromise, involves adding low-volatility assets to reduce a portfolio's overall volatility. In our portfolios, we used a short-term bond fund to implement this principle of compromise. And it worked—in every single bear market and major market correction, the conservative portfolio (containing 60 percent bonds) sustained lower losses than the moderate portfolio (40 percent bonds), and the moderate portfolio incurred fewer losses than the aggressive portfolio (20 percent bonds). The more bonds we add to our portfolio, the lower the resulting volatility.

But we achieved this volatility reduction by accepting the lower returns that come with bonds. This is the principle of compromise. By using bonds to reduce volatility, did we wind up reducing *returns* to the point where they could not keep up with inflation? Are we simply trading John Stockman's fate for Joe Bondsman's? To answer this question, we must shift our focus from the short run to the long run and test our portfolios' ability to generate inflation-beating returns.

### The Initial Test

Return data on all five of our asset classes are available back to 1972. Therefore, as a first test, let's see how our basic portfolios would have performed assuming that we invested our \$100,000 on January 1, 1972. We will rebalance each portfolio at the beginning of each subsequent year, but other than for rebalancing, we will not do any buying or selling of assets for the entire forty-two years between 1972 and 2013. *Buy and hold* is our strategy, so we will *buy* in 1972 and then *hold* for the next forty-two years. Furthermore, for this initial step, we will assume no withdrawals from the portfolio to meet expenses or savings added to the portfolio. We can imagine a twenty-three-year-old who is a knowledgeable investor but on a limited income with no potential for savings. Let's call her Anne. Anne comes into a \$100,000 inheritance in 1972, puts it in a retirement account, and does not touch it (except to rebalance it) until she is ready to retire at age sixty-five. What kind of retirement can she expect?

As Table 8.6 shows, buying and holding any one of our three basic portfolios would have made Anne a millionaire at retirement. But the investment in the bond

fund does come at a price. The conservative portfolio, with a 60 percent allocation to bonds, yields \$2.44 million at retirement, while the aggressive portfolio grows to \$4.14 million. None of our basic portfolios can match a 100 percent investment in the stock market. As measured by the S&P 500, a 100 percent stock portfolio would have grown to \$6.56 million.

**Table 8.6. Growth and Annualized Returns of the Basic Portfolios, 1972–2013**

Performance Metric	S&P 500	Portfolio		
		Aggressive	Moderate	Conservative
Total value in 2013	\$6.56 million	\$4.14 million	\$3.23 million	\$2.44 million
Annualized returns, 1972–2013	10.5%	9.3%	8.6%	7.9%

Source: Developed by the author using data from [www.morningstar.com](http://www.morningstar.com).

Still, even the \$2.44 million produced by the conservative portfolio isn't bad, no? This portfolio generated annualized returns of 7.9 percent—2.6 percentage points less than the S&P 500's 10.5 percent returns. To put these numbers in perspective, the average compound annual rate of inflation between 1972 and 2013 was 4.2 percent. Just to keep pace with inflation, the conservative portfolio would have to have grown to \$563,000 by 2013. But although the conservative portfolio's returns of 7.9 percent were less than double the rate of inflation, this portfolio more than *quadrupled* the purchasing power of the original investment from \$563,000 to \$2.44 million. *This* is the power of compounding. The night thief, inflation, uses this power for evil. But Anne has put this power on her side, earning investment returns that far surpass inflation. And if the conservative portfolio beat inflation, so, too, did the much higher-returning moderate and aggressive portfolios.

## The Stress Test

**How to devise a test from hell.** But we have not yet put the portfolios to a true test of their endurance. The real test of any portfolio is its ability to survive not before but during retirement, when it must generate returns sufficient to cover the retiree's living expenses.

So, let's now suppose that instead of a twenty-three-year-old with no need to withdraw from the portfolio, our investor is instead a sixty-five-year-old widower, Bob, on the verge of retirement. And to make this a really good test, we will suppose that, instead of in 1972, Bob retires on January 1, 1973. This is just eleven days before the beginning of the killer 1973–74 bear market, when the S&P 500 lost nearly half



of its value. Nothing could be unluckier than retiring right when the market takes a major dive.

But Bob is indeed unlucky, because he retired during the high-inflation years of the 1970s and early 1980s. Between 1973 and 1982, inflation averaged nearly 8.7 percent per year. In contrast, inflation ran just under 3 percent per year between 1983 and 2013. We will therefore assume that Bob increases his annual withdrawals by 8.7 percent between 1973 and 1982, before reducing the inflation adjustment to 3 percent for the remainder of his retirement. Assuming he starts his retirement in 1973 by withdrawing 4 percent of his portfolio's value (or \$4,000), by 1983 his required annual withdrawal would have more than doubled to \$8,729. Had inflation remained at a more normal 3 percent per year, Bob's withdrawal in 1983 would have been only \$5,376. The stagflation of the 1970s and 1980s increased his living expenses by more than \$3,000. By 2013, Bob would need to withdraw \$21,188 to keep pace with inflation—more than five times his original \$4,000 withdrawal.

Retiring at the beginning of a major bear market *and* a lengthy period of high inflation puts a double whammy on Bob's portfolio. He is due for some good luck, so we will now imagine that he has a very long, healthy life. He dies on December 31, 2013, at the ripe old age of 106. But although this is good luck in many ways, it is *bad* luck financially. It means that his retirement portfolio must survive not for twenty, or even thirty, years but for a very long forty-one years. Financially, the combination of the bear market at the start of retirement, the abnormally high inflation, and Bob's longevity constitutes a *triple* whammy.

I'm not piling one financial misfortune on top of another to be cruel to Bob. My purpose is to devise the most difficult portfolio stress test possible. If our basic portfolios can survive the test of a 1973 retirement that lasts up to the present, then we can safely assume that they could have survived anything else that happened between 1973 and 2013 (*except* perhaps a retirement that begins in the Lost Decade of the 2000s—that is a test we will save for the next chapter). We will use Bob's woes to try to break our portfolios to see just how strong they really are.

**Stress test results.** Like Anne, Bob makes no trades after his original investments in 1973, other than to rebalance his portfolio at the beginning of each year. Figure 8.3 shows the amount of money that would remain in each of our three basic portfolios on December 31, 2013, the day of Bob's death. For comparison, we also show how Bob would have fared had he invested the entire \$100,000 in the S&P 500.

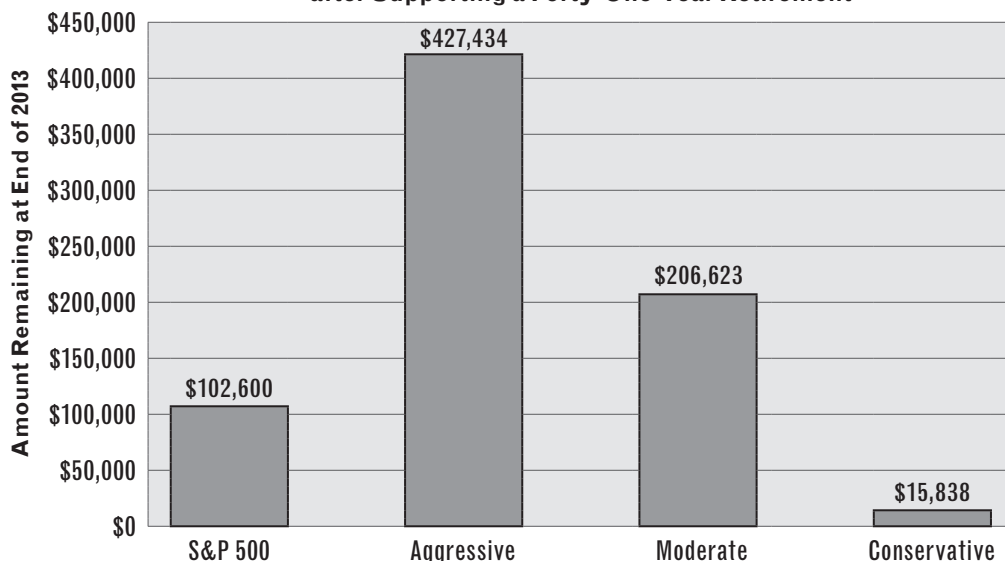
What a difference between pre-retirement and retirement! Instead of being left with millions, like Anne, Bob is left with \$427,434 if he went with the aggressive portfolio, and even less if he used one of the other portfolios. Clearly the test we devised proved a difficult one.

Nonetheless, all the portfolios would have seen Bob through to his final days—although the conservative portfolio just barely squeaks by. In 2014, had he lived, Bob would have needed to withdraw \$21,824 from the \$15,838 remaining in the conservative

portfolio. He almost certainly would have been bankrupt by the end of 2014. This may be cutting things a little too close for comfort.

In contrast, the moderate and aggressive portfolios finished with more than enough money to spare.

**Figure 8.3. Value of the Basic Portfolios on December 31, 2013, after Supporting a Forty-One-Year Retirement**



Source: Developed by the author using data from [www.morningstar.com](http://www.morningstar.com).

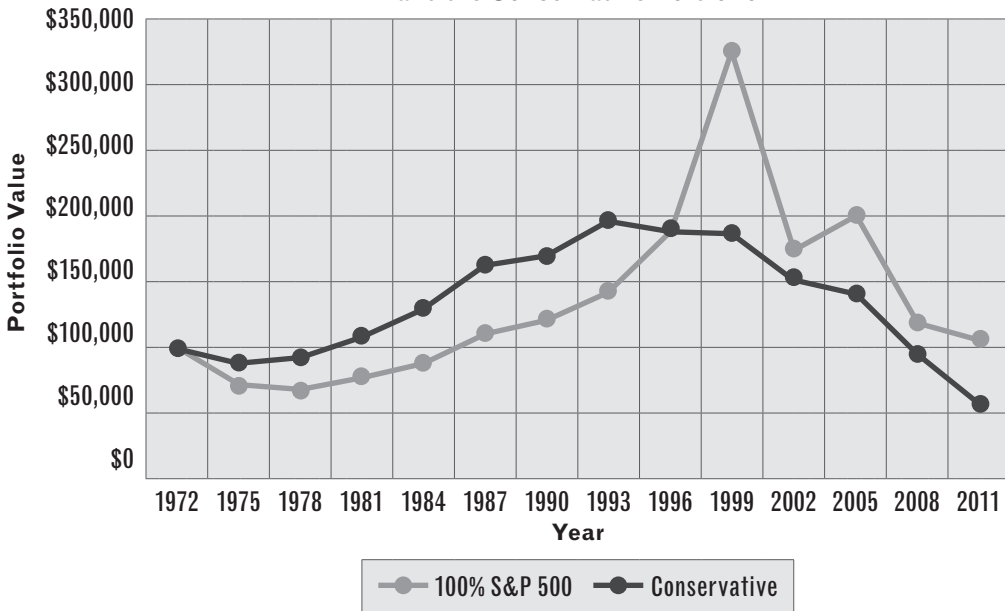
**The Goldilocks portfolios.** In Figure 8.3, we have a dramatic illustration of the two sides of the retirement risk. The two portfolios in the middle proved the safest; the two at the extreme left and right less so.

Although the 100 percent S&P 500 portfolio survived and kept its initial value intact, it was nonetheless weakened by volatility. We know it was volatility, not lack of returns, that hurt this portfolio because we know it produced the best long-run average returns of all four portfolios (as shown in Table 8.6). Figure 8.4 shows the trajectory of the S&P 500 portfolio over the course of Bob's retirement; for comparison, we also show the conservative portfolio's trajectory. This figure illustrates just how much damage volatility can do to a retiree's portfolio. From 1995 through 2009, the S&P 500 portfolio traces out a roller-coaster ride of exhilarating highs and stomach-churning free falls. It is the trajectory of a portfolio subject to too much market volatility.

Contrast the steep mountains and deep valleys of the S&P 500 portfolio's trajectory with the long, gentle hill the conservative portfolio climbs and then descends. This is the trajectory of a portfolio that has minimized volatility but that, in its latter years, is not generating returns sufficient to outpace inflation. It is significant that the portfolio peaks not at the beginning of a major bear market (in 2000, like the

S&P 500 portfolio), but right in the middle of the great stock and bond *bull* market of 1982–99. There were no major stock market downturns near the conservative portfolio’s 1993 peak, and not even the outsized stock returns of the late 1990s—the dot-com bubble years—prove sufficient to reverse the portfolio’s declining trend. That the portfolio began its decline in the midst of a calm, secular bull market is evidence that it simply ran out of steam. Bob’s withdrawals slowly grow with inflation and eventually overtake returns. By 1998, the required annual withdrawal reached 7.6 percent of the portfolio’s value—which is nearly equal to the 7.7 percent annualized return the portfolio generated between 1973 and 2013. As withdrawals continued to increase 3 percent per year beyond 1998, the point of no return was passed. The conservative portfolio was severely weakened by the second component of the retirement risk—not enough returns to outpace inflation.

**Figure 8.4. Trajectory of the 100 Percent S&P 500 Portfolio and the Conservative Portfolio**



Source: Developed by the author using data from [www.morningstar.com](http://www.morningstar.com).

Either the S&P 500 portfolio or the conservative portfolio would have seen Bob through to the end of his life—but not without some anxious days and sleepless nights. Bob might have found the S&P 500 portfolio a little too hot and the conservative portfolio a little too cold.

In contrast, at least for the conditions prevailing in 1973–2013, the moderate and aggressive portfolios were just right. Both followed a bumpier trajectory than the conservative portfolio. Their losses were larger during the downturns of 1973–74, 2000–2002, and, most especially, 2007–9. Yet paradoxically, they proved to be *less risky* than the conservative portfolio. They struck a better *balance* between the two

components of the retirement risk, keeping volatility in check without compromising returns too much in the process. Call them the Goldilocks portfolios.

**The key takeaways.** Too many investors are frightened by the risk of *temporary* stock market losses into relying too heavily on bonds. Our stress test shows that, in highly inflationary conditions, a portfolio weighted too heavily toward bonds can be as dangerous—or even more dangerous—than one weighted too heavily toward stocks. We have not thus far considered a basic portfolio comprising 80 percent bonds and 20 percent stocks, but I have put just such a very conservative portfolio to the same stress test and found that it would have run out of money by the end of 2007—six years too soon for Bob. A 100 percent bond portfolio would obviously have done even worse.

The high inflation of the 1970s and early 1980s wreaked havoc on bonds. Can such inflation recur in the future? Of course it can. Will it? I don't have a crystal ball, and neither does anyone else. There are many smart, knowledgeable economists who believe that the Federal Reserve has been pursuing highly inflationary policies. There are many other smart, knowledgeable economists who believe the Fed's recent actions helped prevent *deflation* and can be unwound before they lead to future inflation. We don't know what the future will bring. The best we can do is prepare for as many possible futures as we can, including the possibility of high inflation. To do that, add bonds to your portfolio *in moderation*. Make this one of your key takeaways from the stress test: in building a portfolio, all things in moderation.

And make this your other key takeaway: all three of our basic portfolios survived the toughest historical test we could devise. All lasted through a very long, nearly forty-one-year retirement that began with a major stock market loss and a ten-year period of abnormally high inflation and ended with the turmoil of the Lost Decade. The chances that you will face a forty-one-year retirement are low, and the odds that such a long retirement would begin with the double whammy of a major bear market and a long bout of inflation are even lower. But isn't it good to know that if you are as unlucky as Bob, you still have a very good chance of enjoying a long, comfortable retirement?

Assuming, of course, that, like Bob, you diligently apply the principles of correlation and compromise, and stick with a buy-and-hold investment strategy through thick and thin?